March 8, 2000

Mr. Gregory Rapp
Construction Services Manager
Potlatch Corporation
1100 Railroad Avenue
P.O. Box 386
St. Maries, Idaho 83861

Re: 1999 Annual Performance Report
Avery Landing Recovery System
J-2296-07

Dear Mr. Rapp:

Hart Crowser is pleased to present the Annual Performance Report for 1999 for the free product recovery system at the Avery Landing site. This letter report includes the following three sections, as required by your Consent Order with the State of Idaho Department of Health and Welfare, Division of Environmental Quality (IDEQ):

- **Volume of Product Recovered.** The total amount of product recovered during the year, and the destination of the recovered product;
- **Recovery System Effectiveness.** An analysis of the effectiveness of the recovery system with respect to free product capture; and
- **2000 Schedule.** A schedule for product and water level monitoring in 2000. In addition, at the request of Potlatch we also present information on:
- **Suggestions for Future Site Work.** A description of suggested site activities, order of magnitude costs, and currently unknown information.

System performance data (groundwater elevations and free product thicknesses) for 1999 were reported in the quarterly performance reports submitted to the IDEQ.

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VOLUME OF PRODUCT RECOVERED

During 1999, the system recovered approximately 100 gallons of free product from the extraction trenches at the site. Approximately 750 gallons of free product have been collected over the life of the project. The First Quarter 1999 Performance Report addressed an error in the free product estimate for the 1998 monitoring year. The current volume estimate reflects the correction to the previous error and volume calculations based on liquid levels in the free product storage tank.

RECOVERY SYSTEM EFFECTIVENESS

Our evaluation of the recovery system effectiveness in capturing free phase hydrocarbon product before it reaches the river is based on capture zone analysis and the amount of free product removed from the river using oil absorbent booms.

Pump Failures and Shutdowns

Pump failure in well EW-4 was noted during the March 18, 1999, site visit. The pump and motor were replaced on April 6, 1999.

Groundwater Capture

Groundwater capture was maintained on the majority of the site during the 1999 operating period. High groundwater flows in the spring and winter caused temporary upsets to the operation of the free product recovery system. Spring runoff from abnormally deep snow pack and winter rains temporarily over-loaded the groundwater system. The extraction well pumps were not able to pump enough groundwater to maintain capture zones near the St. Joe River. The system remained in operation during the high water events, no equipment malfunctions were noted, and free product recoveries were consistent throughout the monitoring period. We do not believe the temporary upsets to system performance indicate significant problems with the recovery system. Furthermore, there was no increase in the sheen noted within the boom during this period, indicating no significant impacts to the St. Joe River. That's because during high run-off periods the booms aren't in the river!

Implications for Future Operation

The system continued to be effective in intercepting free product. It is anticipated that only wells EW-2, EW-3, and EW-4 will need to be utilized during the 2000 operating season. Previous monitoring seasons included three quarters of monitoring, as the system was only

utilized for 9-month periods. The 1999 monitoring season included four quarterly monitoring events as the free product recovery system operated continuously during 1999. The system will continue to run year-round for the 2000 monitoring season.

2000 SCHEDULE

The project schedule for the 2000 monitoring season is provided in Table 1, located at the end of this report. The proposed schedule may change due to weather conditions and is based on the results from previous years of sampling.

POSSIBLE SYSTEM IMPROVEMENTS

IDEQ and the United States Environmental Protection Agency (EPA) have indicated the need for more protection of the St. Joe River. Though we believe the current system maintains control on upgradient free product, it is unable to pull back the free product that is downgradient of the extraction trench. One possible remediation method to address the downgradient product is to excavate the existing shoreline and place an impermeable barrier upgradient of the river to block subsurface migration of free phase hydrocarbons (see Figure 1). Clean cover material would be placed over the impermeable barrier to restore the appearance and function of the shoreline. Figure 2 shows a generalized cross section of the repaired bank. The bottom elevation of the impermeable barrier will be sufficient to prevent migration of free phase hydrocarbons to the river, but not significantly impact the flow of groundwater.

Complete removal of free product in shoreline soil will require excavation below the normal low water elevation of the St. Joe River. One possible solution for excavating below the riverbed grade is the installation of a water-filled barrier in the river channel to temporarily divert water flow around the excavation at the edge of the bank. The water-filled barrier would have less of an impact on the existing riverbed, and would be easier to remove than a sandbag or gravel dam. The permit process for this work has not been researched to determine its viability.

LIMITATIONS

Work for this project was performed, and this letter prepared, in accordance with generally accepted professional practices for the nature and conditions of the work completed in the

same or similar location, at the time the work was performed. It is intended for the exclusive use of the Potlatch Corporation for specific application to the referenced property.

If additional information or clarification is required, please call Terry Montoya at (206) 324-9530.

Sincerely,

HART CROWSER, INC.

TERRY MONTOYA
Senior Project Engineer
twm@hartcrowser.com

MATTHEW F. SCHULTZ, P.E.
Senior Associate
mfs@hartcrowser.com

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Attachments:
Table 1 - Avery Landing Recovery System Project Schedule for 2000 Monitoring Year
Figure 1 - Avery Landing Site Map
Figure 2 - Cross Section Detail

cc: Kreg Beck, Idaho Department of Environmental Quality

Table 1 - Avery Landing Recovery System Project Schedule for 2000 Monitoring Year

Scheduled Milestone	Date
Conduct First Quarter Monitoring	March 30, 2000
Submit First Quarter Monitoring Report	April 21, 2000
Conduct Second Quarter Monitoring	June 8, 2000
Submit Second Quarter Performance Report	July 7, 2000
Conduct Third Quarter Monitoring	September 7, 2000
Submit Third Quarter Performance Report	October 6, 2000
Conduct Fourth Quarter Monitoring	December 8, 2000
Submit Fourth Quarter Performance Report	January 12, 2001
Submit Annual Report	February 9, 2001

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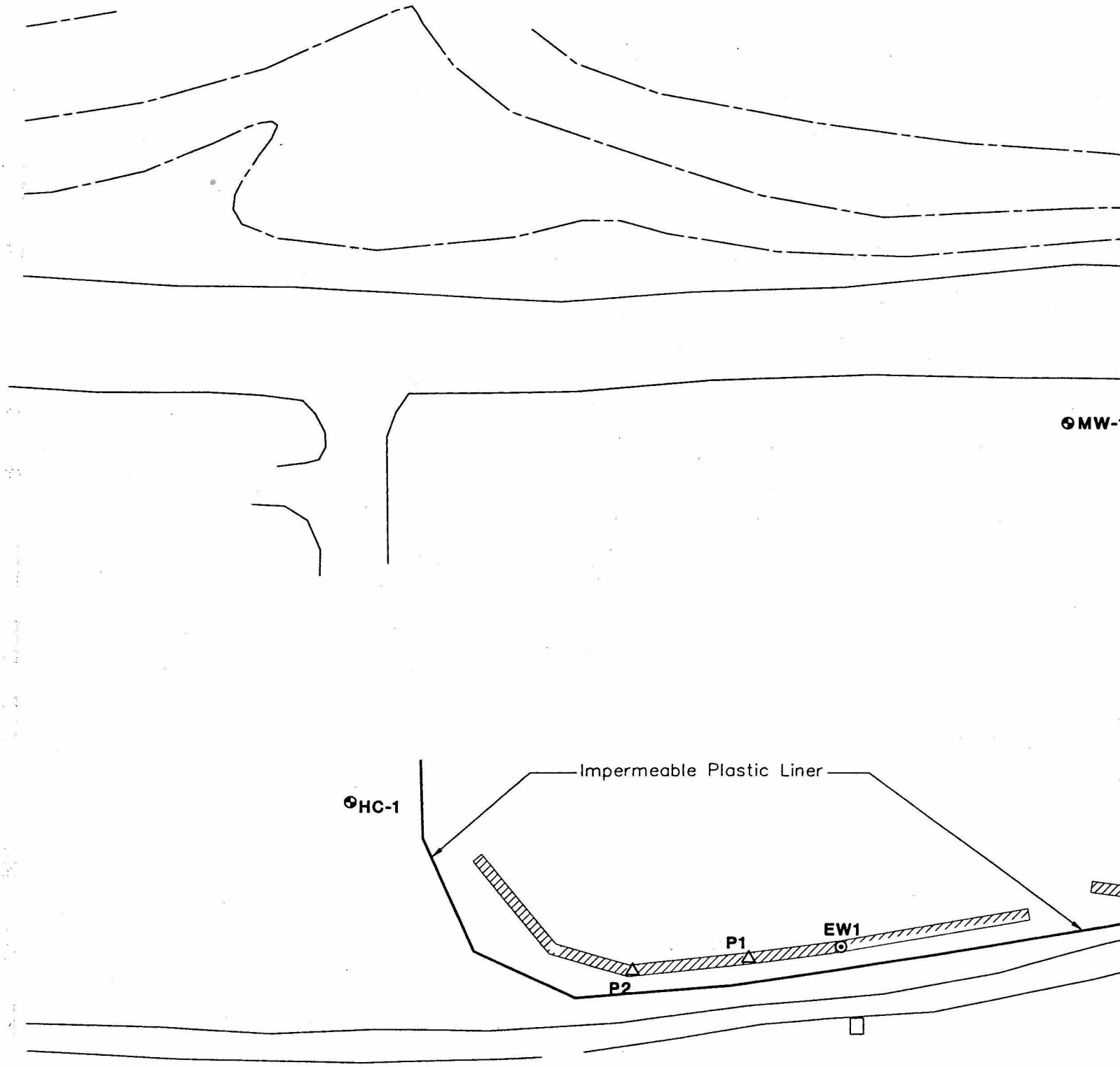
Avery Landing Site Map

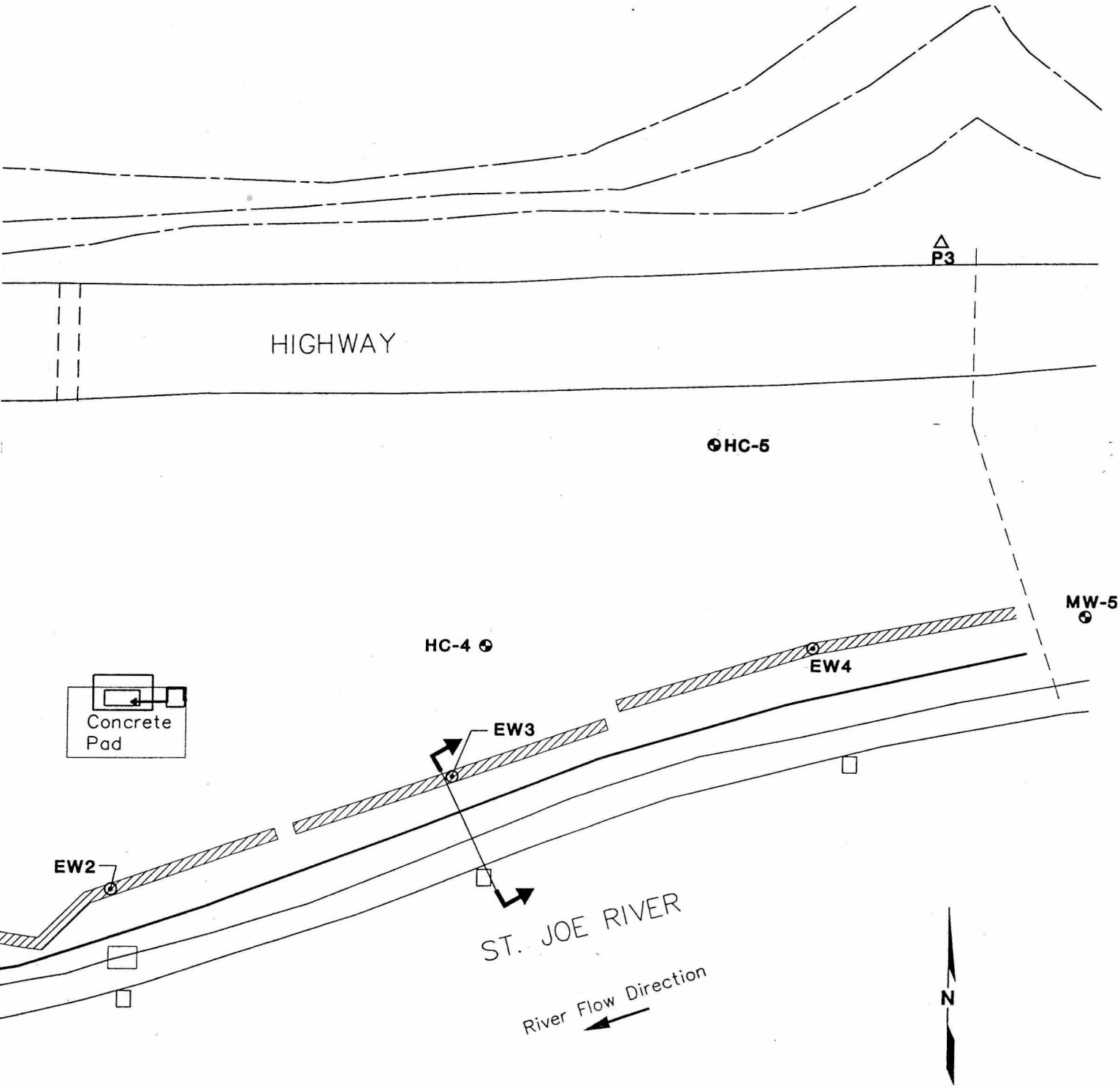


Extraction Trench

Cross Section
Locatin and Designa

Note: Elevation datum is southwest
corner of Concrete Pad (100.00 feet

CVD 3/8/00 1=60 woodstock.pc2
22960709



MW-4	Monitoring Well Location and Number
EW1	Extraction Well Location and Number
P1	Piezometer Location and Number
HC-5	Monitoring Well Lost during Construction (1997)
□	River Elevation Measuring Point

0 60 120

Scale in Feet

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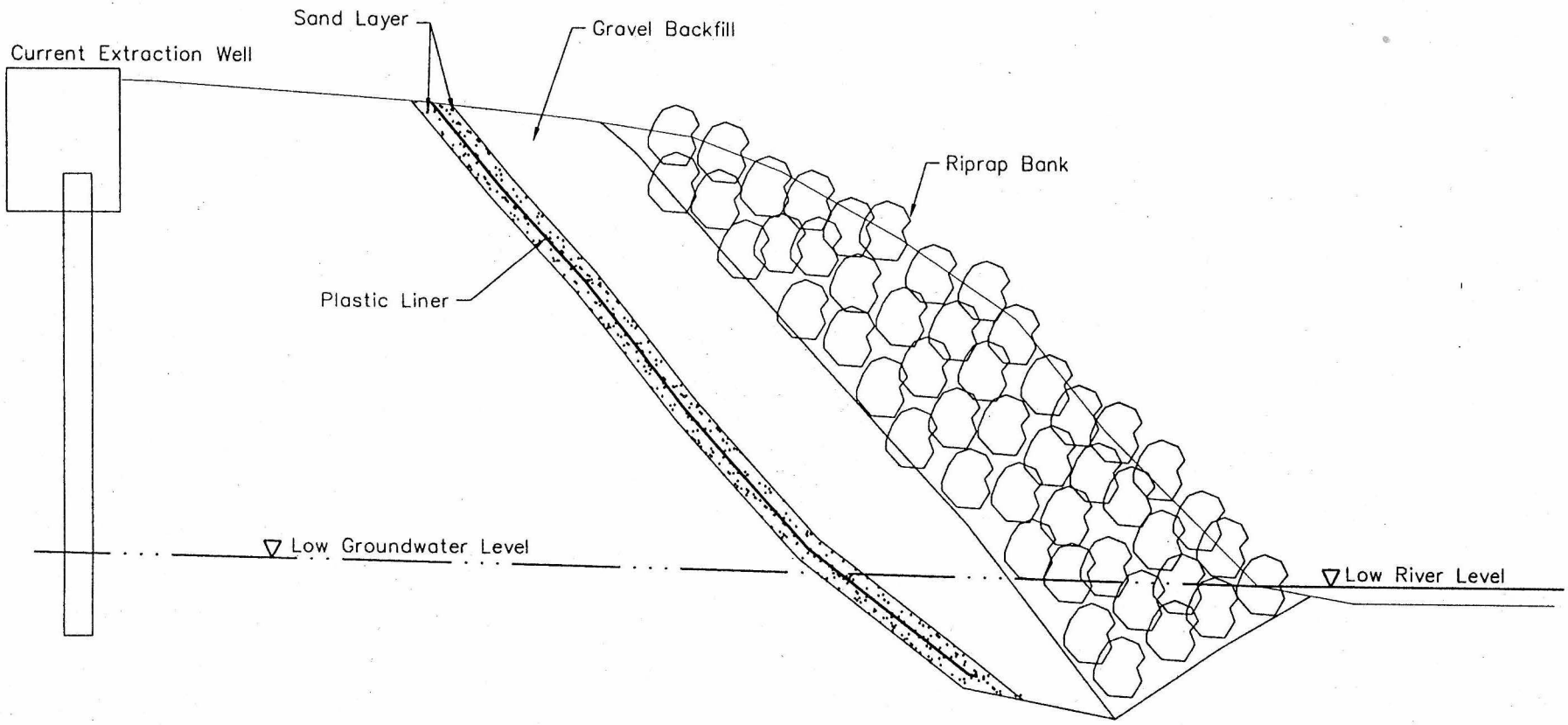
Figure 1

Cross Section Detail



0 15 30
Scale in Feet

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Figure 2